

Sébastien Bubeck

French Citizen
Born April 16, 1985

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Administrative Status

2011–Present	Assistant Professor, Princeton University, Department of Operations Research and Financial Engineering (Princeton, United States).
2010 – 2011	Postdoc, Centre de Recerca Matemàtica (Barcelona, Spain).
2007 – 2010	PhD student (speciality: Mathematics), INRIA Nord Europe, Sequel team (Lille, France).
2008 – 2010	Teaching assistant at the University of Lille 1 (Lille, France).
July-August 2006	RIPS student (Research in Industrial Projects for Students) at the Institute for Pure and Applied Mathematics, UCLA (Los Angeles, United States).
2005 – 2008	Student at the Ecole Normale Supérieure de Cachan (Cachan, France).

Diplomas, Awards, Grants

2011	Second prize for the best French Ph.D in Artificial Intelligence (AI prize 2011).
2010	Jacques Neveu prize 2010 for the best French Ph.D in Probability/Statistics.
2010	Second prize for the best French Ph.D in Computer Science (Gilles Kahn prize 2010).
2010	Centre de Recerca Matemàtica Postdoctoral Grant.
2010	Ph.D of the University of Lille 1.
2009	Best Student Paper Award at COLT (Conference on Learning Theory) 2009.
2008	Doctoral grant for "Normaliens".
2007	MSc Mathematics, ENS Cachan, summa cum laude.
2005	BSc Mathematics, ENS Cachan, summa cum laude.

Professional service

I have been on the Program Committee of the following conferences:

- NIPS 2012, COLT 2013 (I am also a local organizer for COLT 2013), ALT 2013.

Preprints

27. E. Arias-Castro, S. Bubeck and G. Lugosi, *Detecting Positive Correlations in a Multivariate Sample*.
Submitted, 2012.
26. S. Bubeck, N. Cesa-Bianchi and G. Lugosi, *Bandits with heavy tail*.
Submitted, 2012.
25. S. Bubeck, D. Ernst and A. Garivier, *Optimal discovery with probabilistic expert advice: finite time analysis and macroscopic optimality*.
Submitted, 2012.
24. J.Y. Audibert, S. Bubeck and G. Lugosi, *Regret in Online Combinatorial Optimization*.
Submitted, 2012.

Publications

23. S. Bubeck, T. Wang and N. Viswanathan, *Multiple Identifications in Multi-Armed Bandits*.
In *Proceedings of the 30th International Conference on Machine Learning*, 2013.
22. S. Bubeck and N. Cesa-Bianchi, *Regret Analysis of Stochastic and Nonstochastic Multi-armed Bandit Problems*.
In *Foundations and Trends in Machine Learning*, Vol. 5: No 1, 1-122, 2012.
21. S. Bubeck, D. Ernst and A. Garivier, *Optimal discovery with probabilistic expert advice*.
51st IEEE Conference on Decision and Control (CDC), 2012.
20. S. Bubeck, N. Cesa-Bianchi and S. M. Kakade, *Towards Minimax Policies for Online Linear Optimization with Bandit Feedback*.
In *Proceedings of the 25th Annual Conference on Learning Theory (COLT)*, 2012.
19. S. Bubeck and A. Slivkins, *The best of both worlds: stochastic and adversarial bandits*.
In *Proceedings of the 25th Annual Conference on Learning Theory (COLT)*, 2012.
18. E. Arias-Castro, S. Bubeck and G. Lugosi, *Detection of correlations*.
Annals of Statistics, 40, 412-435, 2012.
17. S. Bubeck, *Introduction to Online Optimization*.
Lecture Notes, 2011.
16. V. Gabillon, M. Ghavamzadeh, A. Lazaric and S. Bubeck, *Multi-Bandit Best Arm Identification*.
In *Advances in Neural Information Processing Systems (NIPS)* 24, 2011.
15. S. Bubeck, G. Stoltz and J. Y. Yu, *Lipschitz Bandits without the Lipschitz Constant*.
In *Proceedings of the 22nd International Conference on Algorithmic Learning Theory (ALT)*, 2011.
14. J.Y. Audibert, S. Bubeck and G. Lugosi, *Minimax Policies for Combinatorial Prediction Games*.
In *Proceedings of the 24th Annual Conference on Learning Theory (COLT)*, 2011.
13. S. Bubeck, R. Munos, G. Stoltz and C. Szepesvári, *\mathcal{X} -Armed Bandits*.
In *Journal of Machine Learning Research (JMLR)*, 12, 1587-1627, 2011.
12. S. Bubeck, R. Munos and G. Stoltz, *Pure Exploration in Finitely-Armed and Continuously-Armed Bandits*.
In *Theoretical Computer Science*, 412, 1832-1852, 2011.

11. J.Y. Audibert, S. Bubeck and R. Munos, *Bandit View on Stochastic Optimization*. In S. Sra, S. Nowozin, S. J. Wright., editors, *Optimization for Machine Learning*, MIT Press, 2011.
10. J.Y. Audibert and S. Bubeck, *Regret Bounds and Minimax Policies under Partial Monitoring*. *Journal of Machine Learning Research (JMLR)*. 11, 2635-2686, 2010.
9. S. Bubeck, *Bandits Games and Clustering Foundations*. *PhD dissertation*, Université Lille 1, 2010 (**Jacques Neveu prize 2010, runner-up for the Gilles Kahn prize 2010, runner-up for the french AI prize 2011**).
8. J.Y. Audibert, S. Bubeck and R. Munos, *Best Arm Identification in Multi-Armed Bandits*. In *Proceedings of the 23rd Annual Conference on Learning Theory (COLT)*, 2010.
7. S. Bubeck and R. Munos, *Open-Loop Optimistic Planning*. In *Proceedings of the 23rd Annual Conference on Learning Theory (COLT)*, 2010.
6. S. Bubeck, R. Munos and G. Stoltz, *Pure Exploration in Multi-Armed Bandit Problems*. In *Proceedings of the 20th International Conference on Algorithmic Learning Theory (ALT)*, 2009.
5. S. Bubeck, M. Meila and U. von Luxburg, *How the Initialization Affects the Stability of the k -means Algorithm*. In *ESAIM: Probability and Statistics*, 16, 436-452, 2012.
4. J.Y. Audibert and S. Bubeck, *Minimax Policies for Adversarial and Stochastic Bandits*. In *Proceedings of the 22nd Annual Conference on Learning Theory (COLT)*, 2009 (**Best Student Paper Award**).
3. S. Bubeck, R. Munos, G. Stoltz and C. Szepesvári, *Online Optimization in \mathcal{X} -Armed Bandits*. In *Advances in Neural Information Processing Systems (NIPS)* 22, 2009.
2. S. Bubeck and U. von Luxburg, *Nearest Neighbor Clustering: A Baseline Method for Consistent Clustering with Arbitrary Objective Functions*. *Journal of Machine Learning Research (JMLR)* 10, 657-698, 2009.
1. U. von Luxburg, S. Bubeck, S. Jegelka and M. Kaufmann, *Consistent Minimization of Clustering Objective Functions*. In *Advances in Neural Information Processing Systems (NIPS)* 21, 2008.

Oral Communications

- CDC 2012, Maui (Hawaii, USA), December 13th, 2012.
- Neuroscience Institute at Princeton University, Princeton (NJ, USA), November 8th, 2012.
- Tutorial at ACML 2012, Singapore (Republic of Singapore), November 4th, 2012.
- Department of Management Science and Information Systems and RUTCOR Seminar, Rutgers University, Newark (NJ, USA), September 24th, 2012.
- Journées MAS 2012, invited talk for the Jacques Neveu prize 2010, Clermont-Ferrand (France), August 28th, 2012.
- ICML 2012 workshop (invited talk), Exploration and Exploitation 3, Edinburgh (Scotland), July 1st, 2012.
- COLT 2012, Edinburgh (Scotland), June 25th, 2012.

- Department of Electrical and Computer Engineering University of Wisconsin-Madison, Madison (WI, USA), June 6th, 2012.
- Department of Electrical Engineering, Princeton University, Princeton (NJ, USA), May 3rd, 2012.
- Computer Science Department, Rutgers University, New Brunswick (NJ, USA), April 30th, 2012.
- INFORMS 2011, Charlotte (NC, USA), October 15th, 2011.
- Tutorial at ALT 2011, Espoo (Finland), October 5th, 2011.
- Oberwolfach workshop (Germany), August 21st, 2011.
- Dagstuhl workshop (Germany), July 19th, 2011.
- COLT 2011, Budapest (Hungary), July 10th, 2011.
- Department of Operations Research and Financial Engineering, Princeton University, Princeton (NJ, USA), February 21th, 2011.
- Sequel team, INRIA Nord Europe, Lille (France), February 14th, 2011.
- Gilles Kahn prize 2010, Grenoble (France), February 3rd, 2011
- ENST, Paris (France), November 19th, 2010.
- Journées MAS 2010, Bordeaux (France), September 1st, 2010.
- COLT 2010, Haifa (Israel), June 29th, 2010.
- Ph.D defense, ENS, Paris (France), June 10th, 2010.
- JFPDA 2010, Besançon (France), June 1st, 2010.
- TRaSH 2010, Paris (France), March 24/25th, 2010.
- Sequel team, INRIA Lille, October 23th, 2009.
- ALT 2009, Porto (Portugal), October 3rd 2009.
- ANR EXPLO-RA, ENS, Paris (France), June 23th, 2009.
- COLT 2009, Montreal (Canada), June 20th, 2009.
- Sequel team, INRIA Lille, April 3rd, 2009.
- ANR EXPLO-RA, ENS, Paris (France), January 16th, 2009.
- OPT 2008, NIPS Workshop, Whistler (Canada) , December 12th, 2008.
- Working group Learning, ENS, Paris (France), May 19th, 2008.
- Working group ITstat, ENST, Paris (France), April 4th, 2008.
- Sequel team, INRIA Lille, September 7th, 2007.

Editorial Activity

I have been reviewing papers for the following journals/conferences:

- NIPS (Neural Information Processing Systems) 2008 - 2009 - 2010 - 2011;
- COLT (Conference on Learning Theory) 2009 - 2010 - 2011 - 2012;

- ICML (International Conference on Machine Learning) 2011 - 2012;
- SODA (Symposium on Discrete Algorithms) 2012 - 2013;
- ECML-PKDD 2012;
- JMLR (Journal of Machine Learning Research);
- Machine Learning journal;
- Annals of Statistics;
- Electronic Journal of Statistics;
- Automatica;
- IEEE Transactions on Pattern Analysis and Machine Intelligence;
- IEEE Transactions on Automatic Control;
- IEEE Transactions on Information Theory;
- IEEE Signal Processing Letters;
- IEEE Journal of Selected Topics in Signal Processing;
- Theoretical Computer Science;

as well as several workshops on learning theory.

Teaching

2012–2013

- ORF 523: graduate course on Advanced Optimization. ORFE, Princeton University.
- ORF 245: undergraduate course, Fundamentals of Engineering Statistics. ORFE, Princeton University.

2011–2012

- ORF 570: graduate course on Online Convex Optimization. ORFE, Princeton University.
- ORF 245: undergraduate course, Fundamentals of Engineering Statistics. ORFE, Princeton University.

2009–2010

- Problem sessions in Reinforcement Learning at the MVA, ENS Cachan (Graduate).
- Problem sessions in Real Analysis and Probability at Telecom Lille (Undergraduate).
- Weekly oral examination in the Classes Préparatoires of the lycée Faidherbe, Lille.

2008–2009

- Problem sessions in Reinforcement Learning at the MVA, ENS Cachan (Graduate).
- Problem sessions in Numerical Analysis at the University of Lille 1 (Undergraduate).
- Problem sessions in Linear Algebra at the University of Lille 1 (Undergraduate).

- Weekly oral examination in the Classes Préparatoires of the lycée Faidherbe, Lille.

2007–2008

- Problem sessions in Reinforcement Learning at the MVA, ENS Cachan (Graduate).

2006–2007

- Weekly oral examination in the Classes Préparatoires of the lycée Lakanal, Sceaux.